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Alaska District

DB Industry Forum

DOD
Sustainable Design & Development (SDD)

U.S. Army Corps of Engineers,
Alaska District

02 Oct 2007

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DB Industry Forum

USACE SDD Requirements

- EPAct05
- Air Force SDD
- Army SDD
- Commissioning

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EPAct05

- Energy Policy Act of 2005

Buildings to be designed to 30% below ASHRAE 90.1, 2004 or International Energy Code if life-cycle cost-effective through application of sustainable design principles.

To be applied as part of the LEED credits!

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Air Force Sustainable Design

- Air Force Sustainable Design and Development (SDD) Policy, July 2007
  - Meets EPAct05
  - USGBC LEED rating tool as metric
  - ALL AF Construction Projects
  - Regardless of scope or funding

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Air Force Sustainable Design

- Vertical Construction
  - FY09
  - LEED Silver
  - 100% MILCON vertical construction
  - 2% of Primary Facility cost

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Air Force Sustainable Design

- Horizontal, utility & industrial
  - Guidance provided for successful incorporation of credits
  - All SRM Projects shall apply as financially feasible
- NATO, Host or temporary facilities
  - Incorporate sustainable concepts to maximum extent

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Air Force Sustainable Design

- Registration/Certification
  - FY09: AF to select 5% (by project cost) for USGBC Certification.
  - FY10 increase to 10%
  - All others to be Gov't evaluated and compliant with policy.

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Air Force Sustainable Design

- Implementation
  - LEED AP to monitor and document
  - Occur at Programming, design charrette, final design, and BOD
  - Process shall continue for life of Facility

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Army Sustainable Design

- New Construction
  - All Military vertical construction projects
  - Climate-controlled facilities
  - LEED-NC: SILVER level
  - Meet EPAct05

  - Exempt from Silver not from LEED
    - Horizontal Construction
    - Non Climate Controlled Buildings
    - Army Family Housing – Use SPIRIT
    - Overseas Contingency Buildings and Conus Interim Facilities

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Army Sustainable Design

- Renovations
  - Major renovation and repair projects
  - =>$7.5 million
  - LEED-EB: Certified level, LEED-EB Responsibility Matrix
  - Life Cycle Cost Effective

- Multiple Building Projects
  - LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects, by USGBC

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Army Sustainable Design

- Validation
  - Government Validation (USGBC Registration may or may not be required)
  - USGBC Certification
  - ARMY USGBC Certification
  - ACSIM Validation Program

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Army Sustainable Design

- Documentation
  - GOVERNMENT VALIDATED
    - Must be separable independent submittal
    - Kept current throughout the project LEED 2.2 Documentation Requirements and Submittal Checklist as a minimum
  - USGBC CERTIFICATION PROJECTS
    - LEED Online

LEED 2.2 Documentation Requirements and Submittal Checklist, available at http://en.sas.usace.army.mil

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Army Sustainable Design

- Phases
  - Initial Programming/Planning Charrette
    - LEED Checklist
    - New Construction: Line Item in 1391-2% of Primary Facility Costs
    - Endorsement of LEED Checklist
  - 3086 Validation
    - Validate and refine Initial Checklist

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Army Sustainable Design

- Phases (continued)
  - DB RFP
    - Minimum LEED rating
    - Status of credits for Site Selection, part of RFP
    - MT has LEED Project Credit Guidance
    - Owner's Project Requirements for commissioning
    - Commissioning Authority services
    - USGBC Registration and/or Certification
    - Post Award submittal requirements
    - Contractor provide LEED AP

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- Phases (continued)
  - DB RFP (continued)
    - Past Performance for LEED experience, plan, monitoring system
    - Technical proposal to include LEED Checklist
    - Contracting Officer advance approval for post award changes to Credits
    - Resolve any conflicts between points and technical proposal

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- Phases (continued)
  - Design DB & DBB
    - Pre-Design Conference to discuss LEED requirements and documentation
    - Supporting documentation separable
    - Design Review conferences shall discuss LEED issues from audits
    - 100% Project Design shall establish design interim score

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- Phases (continued)
  - Construction DB & DBB
    - Pre-Construction Conference discuss LEED requirements and documentation
    - LEED documentation is a separate closeout submittal
    - Construction Agent ensure compliance
    - BOD Closeout – Verify LEED final score

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Sustainable Design Commissioning

Two Commissioning (Cx) paths:

1. Traditional MILCON (Air Force, non-standard Army)
   - UFGS 15951A - DDC Controls
   - UFGS 23 05 93 (15990A) - TA & B
   - UFGS 23 08 00 (15995A) - HVAC Commissioning

2. MILCON Transformation (Standardized Army)
   - ASHRAE Guideline 1, The HVAC Commissioning Process

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Sustainable Design Commissioning

UFGS 23 08 00 (15995A)

- Commissioning Plan - using NEBB, ACG or TABB standards
- Commissioning Specialist
- Pre-Functional Performance Test Checklists
- Function Performance Test – FPT’s
- Commissioning Report

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Sustainable Design Commissioning

Army Transformation RFP

5.8.5 Commissioning: Commission all HVAC systems and equipment, including controls and systems requiring commissioning for LEED Fundamental commissioning, in accordance with ASHRAE Guideline 1 and LEED. The Contractor shall hire the Commissioning Authority, certified as a Commissioning Authority by AABC, NEBB or TABB, as described in Guideline 1. The Contracting Officer's Representative will act as the Owner's representative in performance of duties spelled out under OWNER in Annex A2 of ASHRAE Guideline 1.

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Sustainable Design Commissioning

ASHRAE versus UFGS

ASHRAE Guide 1	**Guide Specifications**
Program-Phase	**Program Phase**
Owners Project Requirements/Design Intent	Project Requirements in the RFP
Commissioning Plan (initial)	
Basis of Design	
Design Phase	**Design**
Design Commissioning Plan	Contractor develops based on UFGS 15995
Commissioning Specification	RFP requires use of 15995
Construction Phase	**Construction**
Field Installation checks	Pre-Functional Checklist
Submittals	Commissioning submittal review
Commissioning Plan Updated	
Acceptance Phase	
Verification	
Operating Test (Start-up)	Testing required in various Specifications
TAB verification	10% TAB verification required in UFGS 15990
Functional Performance Testing	100% DDC PVT and Endurance Test
Commissioning Documentation	Pre-functional checklist per UFGS 15995
	Functional Performance Test per UFGS 1995

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Sustainable Design Commissioning

LEED Fundamental Commissioning

To meet the LEED NC 2.2 Fundamental Commissioning prerequisites, commissioning activities must be completed for the following energy related systems, at a minimum:

- Heating, ventilating, air conditioning, and refrigeration (HVAC&R) systems and associated controls
- Lighting and Daylighting controls *(not in UFGS's or ASHRAE)*
- Domestic hot water systems
- Renewable energy systems (wind, solar etc.)

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LEED Cx Authority

Party Acting as the Commissioning Authority	Fundamental Commissioning Prerequisite		Enhanced Commissioning Credit
	<50K sf	>=50K sf	
Employee or subcontractor of the General Contractor with construction responsibilities	Y		
Employee or subcontractor, with construction responsibilities, of the Construction Manager (CM) who holds constructor contracts	Y		
Employee or subcontractor with project design responsibilities of the Architect or Engineer of Record (A/E)	Y		
Disinterested [1] employee or a subcontractor of the general Contractor or CM	Y	Y	
Disinterested [1] employee of the A/E	Y	Y	
Disinterested [1] subcontractor of the A/E	Y	Y	Y
Construction Manager not holding constructor contracts	Y	Y	Y
Independent consultant to Owner (**not used in MILCON**)	N/A	N/A	N/A
Owner employee or staff (**not used in MILCON**)	N/A	N/A	N/A

[1] "Disinterested means an employee or subcontractor who has no project responsibilities other than commissioning

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SDD Commissioning

What to look for in the future:

- 100% HVAC equipment verification per 8.3 of Guide 1
- 10% TA & B verification per 8.3.2.2 of Guide 1
- 100% DDC verification per 8.
- Include DDC/Building Systems Endurance Test for 7 days
- Functional Performance Testing for HVAC equipment per matrix included in the RFP
- Specification 01 33 29, LEED™ Documentation
  - Implementation Plan
  - Documentation Notebook

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USACE SDD Requirements

Questions?

NOTE: Forum Report will be posted on USACE Alaska District industry website at "http://www.poa.usace.army.mil/pa/hottop/hottop.htm"